

REMARKS

The present amendment is submitted in response to the Final Office Action mailed December 7, 2007. Claims 1-5 are currently pending in the application. No new matter or issues are believed to be introduced by this amendment. In view of the amendments above and the remarks to follow, reconsideration and allowance of this application are respectfully requested.

35 U.S.C. §103(a)

Claims 1 and 3 – 5 were rejected under 35 U.S.C. §103(a) as being unpatentable over EP 1172811 A2 – Kojima hereinafter in view of U.S. Patent Application No. 20030058777 – Martynov hereinafter.

With regard to Claim 1, in making the rejection, the Examiner alleges that Kojima teaches all of the elements of the dual-stack optical data storage medium of the invention with the exception that the spacer layer has a thickness selected from the range 20 – 30 μm . The Examiner newly cites Martynov for remedying this deficiency. Specifically, the Examiner cites Martynov for teaching that the thickness of the transparent layer in the range of 20 – 30 μm depends upon the refractive index.

Applicant traverses the rejection of Claim 1 and asserts that Claim 1 is patentably distinguishable over the prior art for at least the following reasons.

It is respectfully submitted that Independent claim 1 is patentably distinguishable over the cited references, alone and in any reasonable combination because the thickness

of the spacer layer of the dual-stack optical data storage medium has a thickness in **dependence on the refractive index** and not the numerical aperture as taught in Kojima.

The Examiner, in his response to arguments at page 2 of the instant Office Action, rejects this distinction, alleging that while Kojima teaches that the thickness of the intermediate (spacer) layer 15 is in dependence on a numerical aperture NA of the objective lens, the numerical aperture is dependent on the refractive index itself. Applicant respectfully disagrees.

Kojima teaches at par. 75 that the thickness of the intermediate (spacer) layer 15 is determined in dependence on the **numerical aperture NA of the objective lens**. Kojima recites at paragraph 75 that – “the thickness of the intermediate layer 15 is a depth of focus DELTA Z or more determined by a **numerical aperture of an objective lens** condensing the laser beam 35 and the wavelength lambda (nm) thereof.”

In Kojima, a determination of layer thickness starts with a given value of the NA of the objective lens. It should be understood that Kojima is **constrained** to determine a layer thickness using the known value of NA. In other words, Kojima does not fix the layer thickness based on a consideration of the refractive index, irrespective of whether there is an obvious relationship between NA and the refractive index. In other words, the refractive index is not a design driving criteria for determining layer thickness and is given no weight or thought in Kojima in determining layer thickness.

Rather, in Kojima, the layer thickness is straightforwardly determined directly and exclusively from a consideration of the known value of NA. The NA is the design driving criteria.

There is no teaching in Kojima of a spacer layer having a thickness selected from the range 20-30 .mu.m, the thickness d_{TS0} in dependence on the refractive index n_{TS0} and the thickness d_{TS1} in dependence on the refractive index n_{TS0} , as recited in claim 1.

Kojima determines a layer thickness as a function of NA, which fixes the refractive index to a certain value. In contrast, the invention determines a layer thickness as a function of refractive index, which fixes the NA to a certain value.

In further support of this distinction, the Applicant respectfully invites the Examiner to revisit paragraph 75 of Kojima which teaches the use of a mathematical expression from which layer thickness is directly derived from NA, without mention of the refractive index of the medium.

Paragraph 75 of Kojima recites –

[0075] The intermediate layer 15 is formed for the purpose of distinguishing the focus position of the first recording from 18 from that of the second recording layer 27. In the intermediate layer 15, grooves for tracking control may be formed. The intermediate layer 15 can be made of light-curable resin or slow-acting resin. A material for the intermediate layer 15 preferably has a small light absorptivity at a wavelength λ of the laser beam 35. **The thickness of the intermediate layer 15 is a depth of focus DELTA Z or more determined by a numerical aperture NA of an objective lens condensing the laser beam 35 and the wavelength λ (nm) thereof.** In the case where the intensity of a condensing point is 80% of that in the absence of aberration, **the depth of focus DELTA Z can be approximated by an equation $DELTA Z = \lambda / \{2 \cdot NA^2\}$.** Thus, when $\lambda = 400 \text{ nm}$ and $NA = 0.6$,

DELTA Z = 0.556 μ m. In this case, a range within $\pm 0.6 \mu$ m falls in the depth of focus, so that the thickness of the intermediate layer 15 should be 1 μ m or more. On the other hand, it is preferable that the thickness of the intermediate layer 15 is prescribed to be 50 μ m or less so that the laser beam 35 can be condensed into both the first recording layer 18 and the second recording layer 27. **[Emphasis Added]**

Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claim 1 and allowance thereof is respectfully requested.

Claims 3 – 5 depend from Claim 1 and therefore include the limitations of Claim 1. Accordingly, for the same reasons given above for Claim 1, Claims 3 – 5 are believed to contain patentable subject matter. Accordingly, withdrawal of the rejections with respect to Claims 3 – 5 and allowance thereof are respectfully requested.

35 U.S.C. §103(a)

Claim 2 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kojima in view of Martynov as applied to claim 1 above, and further in view of U.S. Patent Application No. 2001/0030932 A1 – Spruit hereinafter and U.S. Patent Application No. 2001/0053122 A 1 – Yukomoto hereinafter.

In making the rejection, the Examiner cites Yukomoto for teaching that the deviation of the thickness has to be limited to 2.3 μ m. Applicant traverses the rejection. Claim 2 clearly recites that the values of d_{TS0} and d_{TS1} between a radius of 23 mm and 24 mm of the medium **do not exceed $\pm 0.2 \mu$ m** measured over the whole area of the

medium. Clearly, $\pm 0.2 \mu\text{m}$ is different from $2.3 \mu\text{m}$, as taught in Yukomoto. The difference being very appreciable, with the invention advantageously teaching the narrower boundaries.

Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claim 2 and allowance thereof is respectfully requested.

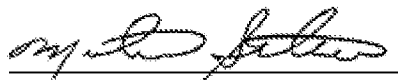
Further, Claim 2 depends from Claim 1 and therefore includes the limitations of Claim 1, as amended. Accordingly, for the same reasons given above for Claim 1, Claim 2 is believed to contain patentable subject matter. Accordingly, based on its dependency, withdrawal of the rejections with respect to Claim 2 is respectfully requested.

Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that all claims presently pending in the application, namely, Claims 1-5 are believed to be in condition for allowance and patentably distinguishable over the art of record.

If the Examiner should have any questions concerning this communication or feels that an interview would be helpful, the Examiner is requested to call Mike Belk, Esq., Intellectual Property Counsel, Philips Electronics North America, at 914-945-6000.

Respectfully submitted,



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